

AMENDMENTS TO THE CLAIMS:

If entered, this listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A flexible pixel sensor element control system ~~configured to read out and processes analog values from a plurality of pixel sensor elements to process~~ a plurality of pixel sensor elements, the system
- 5 comprising:
- an array of pixel sensor elements; and
- a readout and processing circuit ~~configured to readout and processes a plurality of analog values associated with a plurality of pixel sensor elements within~~
- 10 ~~the array, the readout and processing circuit being configured to read out and processes the analog values in a first mode and in a second mode.~~ wherein the readout and processing circuit reads out and averages a first analog value readout from a pixel sensor element of a first color

15    with a second analog value readout from a pixel sensor  
      element of a second color to produce an average readout  
      value;

a first analog line storage unit, the first analog  
      line storage unit been adapted to store a first line  
 20   readout from the array; and

a second analog line storage unit, the second analog  
      line storage unit being adapted to store a third line  
      readout from the array, wherein the readout and processing  
      circuit averages a second consecutive line readout from the  
 25   array with the first line readout stored in the first  
      analog line storage unit to produce a first red-green-blue  
      (RGB) triplet, and wherein the readout and processing  
      circuit averages a fourth consecutive line readout from the  
      array with the third line readout stored in the second  
 30   analog line storage unit to produce a second RGB tripllett.

2.(Original) The system of claim 1, wherein the readout and  
 processing circuit is adapted to read a plurality of pixel  
 sensor elements in parallel.

3. (Canceled)

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4.(Original) The system of claim 1, wherein the pixel sensor elements form a portion of a charge coupled device.

5.(Original) The system of claim 1, wherein the pixel sensor elements form a portion of a complementary metal oxide semiconductor device.

6.(Original) The system of claim 1, wherein the pixel sensor elements are organized in a rectangular matrix.

7.(Currently Amended) The system of claim 1, wherein ~~the first mode~~ said line readouts comprises are performed using a full resolution readout mode.

8.(Currently Amended) The system of claim 1, ~~the first mode~~ said line readouts comprises are performed using a sub-sampling readout mode.

9.(Currently Amended) The system of claim 1, ~~the first mode~~ said line readouts comprises are performed using a window readout mode.

10.(Original) The system of claim 1, further comprising a color filter overlaying at least a portion of the pixel

sensor elements.

11.(Original) The system of claim 10, wherein the color filter includes the colors of red, blue and green in a predefined pattern.

12.(Original) The system of claim 10, wherein the color filter includes the colors of yellow, cyan and magenta in a predefined pattern.

13.(Original) The system of claim 10, where in the color filter comprises a Bayer color pattern.

14.(Original) The system of claim 1, further comprising a micro-lenses layer.

15.(Original) The system of claim 1, further comprising amplifiers adapted to amplify the analog values readout and processed by the readout and processing circuit.

16.(Currently Amended) The system of claim 15, wherein the ~~programmable-gain~~ amplifiers are implemented as a separate stage.

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17.(Currently Amended) The system of claim 15, wherein the  
~~programmable gain~~ amplifiers are contained within a pixel  
circuitry of the array.

18.(Currently Amended) The system of claim 15, wherein the  
~~programmable gain~~ amplifiers are within a plurality of  
column buffers.

19.(Original) The system of claim 1, wherein a first gain  
amplifier amplifies a first analog color component  
a first amount and a second amplifier amplifies a second  
analog color component a second amount, the first and  
5 second analog color components being readout by the readout  
and processing circuit.

20.(Original) The system of claim 19, wherein the  
amplifiers are programmable gain amplifiers adapted to be  
adjusted by a controller.

21.(Original) The system of claim 19, wherein the first  
gain amplifier provides a first transfer function for the  
first color component and the second gain amplifier  
provides a second transfer function for the second  
5 color component.

22.(Original) The system of claim 15, wherein at least one of the amplifiers is a summing amplifier that sums the analog values of two or more pixel sensor elements.

23.(Original) The system of claim 1, further comprising a television coupled to said readout and processing circuit.

24.(Original) The system of claim 1, further comprising a personal computer coupled to said readout and processing circuit.

25.(Original) The system of claim 1, further comprising a display coupled to said readout and processing circuit.

26.(Original) The system of claim 1, further comprising a camera coupled to said readout and processing circuit.

27.(Currently Amended) A flexible pixel sensor element control system that processes of a plurality of pixel sensor elements, the system comprising:

an array of pixel sensor elements; and

5 a control circuit, wherein the control circuit reads out and averages a first analog value readout from a pixel

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sensor element of a first color with a second analog value  
readout from a pixel sensor element of a second color to  
produce an average readout value. wherein the control

10 circuit is adapted to read a plurality of pixel sensor  
elements in parallel;

a first analog line storage unit, the first analog  
line storage unit been adapted to store a first line  
readout from the array; and

15 a second analog line storage unit, the second analog  
line storage unit being adapted to store a third line  
readout from the array, wherein the readout and processing  
circuit averages a second consecutive line readout from the  
array with the first line readout stored in the first  
20 analog line storage unit to produce a first red-green-blue  
(RGB) triplet, the readout circuit and processing averaging  
a fourth consecutive line readout from the array with the  
third line readout stored in the second analog line storage  
unit to produce a second RGB triplett.

28. (Canceled)

29. (Canceled)

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30.(Currently Amended) The system of claim 27, wherein the control circuit reads out and averages the ~~first and second~~ analog values on-the-fly.

31.(Original) The system of claim 27, further comprising gain amplifiers amplifying the average readout value.

32 - 34. (Canceled)